Case 2: (No Co-Location)

This case assumes that a MTSO is required and that access is at the retail rate. We have assumed an $0.11 access rate per minute and have used a MTSO as i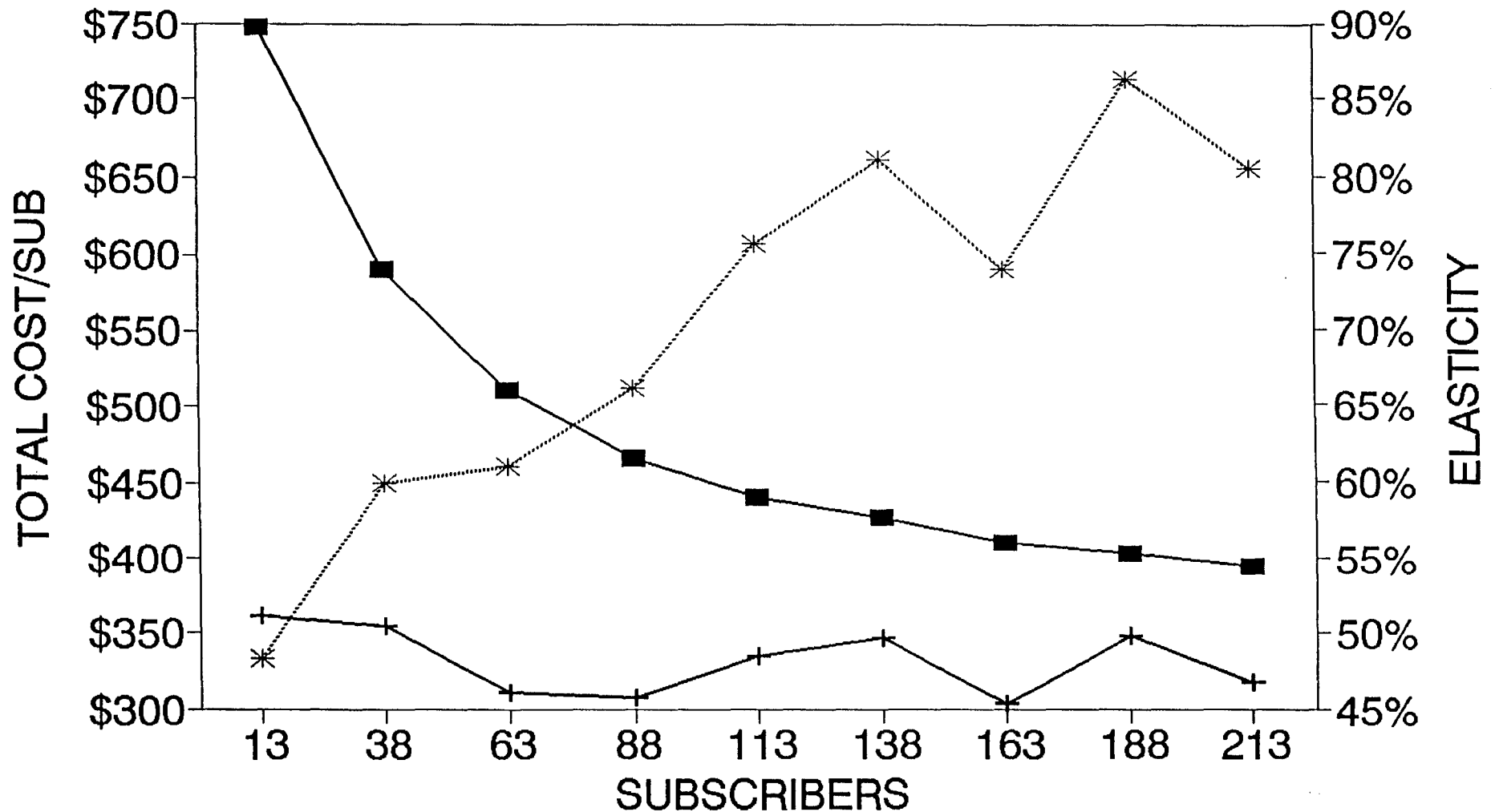ndicated. We note that the marginal costs are $200 per year per sub higher, all due to the higher fixed access rate. We also note that loss of scale occurs at 60,000 users , a lower number. This is because the variable access fees are so high, not because the infrastructure is any better. The impact of loss of co-location is most evident between these two curves.

Carnegie Mellon Univ., Advanced Telecom Institute, Feb., 1993

Figure 5.1 Scale Economy Analysis (Co-Location)
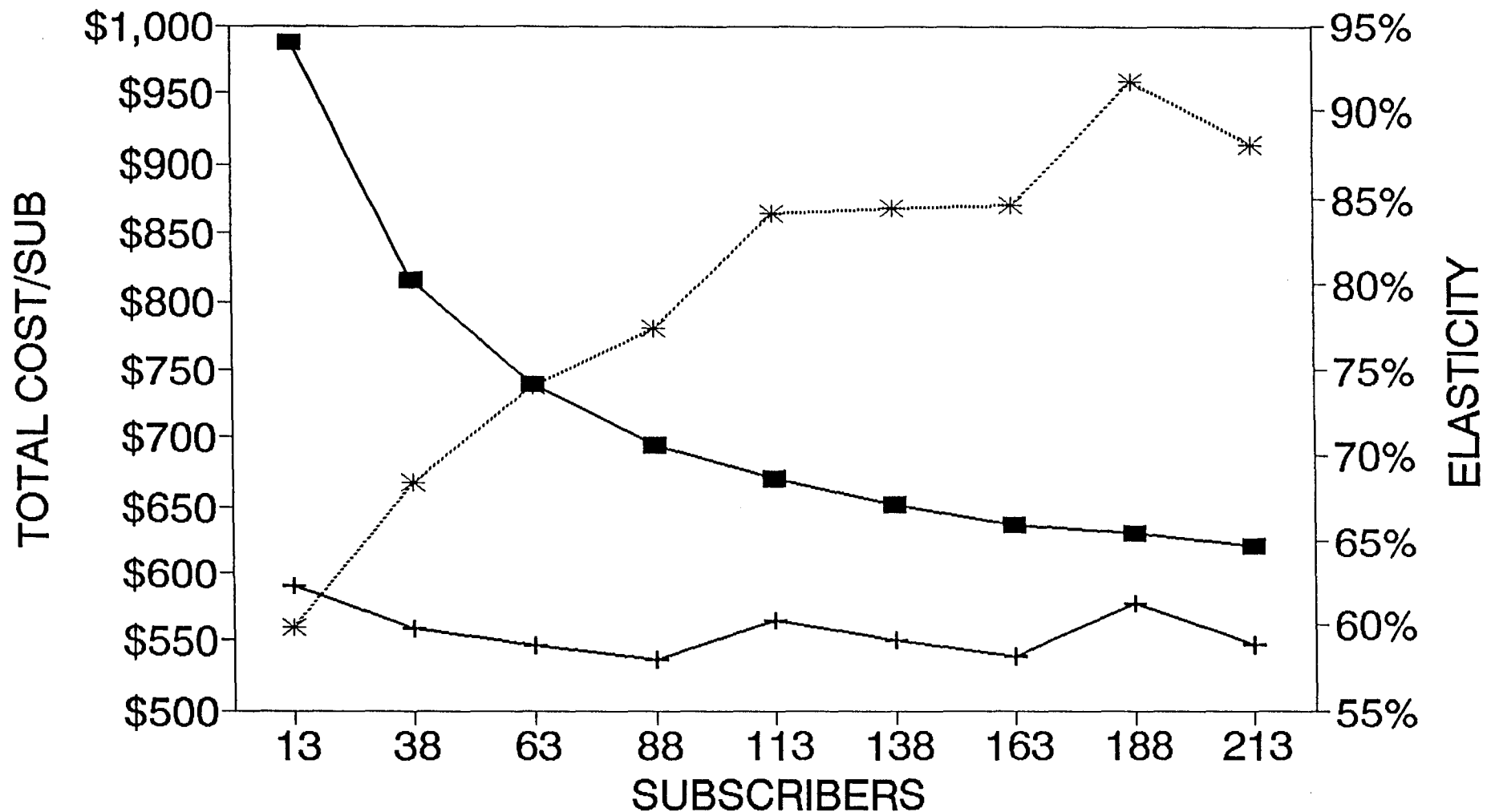
SCALE ECONOMIES
COLOCATED

Figure 5.2 Scale Economy Analysis (No Co-Location)

SCALE ECONOMIES
NOT COLOCATED

6.0 Conclusions

There is a general misunderstanding amongst planners and regulators that there are significant economies of scale, scope or sequence in the provision of wireless telephone service. Furthermore there is a general misunderstanding of where wireless fits in the overall spectrum of telecommunications services. This paper has addressed these issues in some detail.

As to the second issue, we have argued here and elsewhere that the LEC is in effect the concatenation of three separate companies; a retails sales and service entity, a wholesale transport entity, and a wholesale switching entity. We have further argued that it is readily possible and in fact necessary to disaggregate these entities to reach an equitable market price for the services provided. The new wireless companies are playing the rolls of retail entity, and wholesale transport entity. They are therefore competing with the two entities in the LECs that do retail and wholesale transport. However, they and the LEC purchase wholesale switching from the the LEC wholesale switch entity. The problem is one of equitable pricing, the creation of barriers to entry and the problem of establishing de facto antitrust impediments to free competition. The economic analysis developed in this paper is the basis for developing

As to the issues of scale, we have clearly shown that if there is an Open Network Interconnect to a LEC wholesale switch that is priced on an equitable marginal basis, then there are de minimum scale economies to the wireless business. In fact there are no significant barriers to entry for any competitor other than the acquisition of the license. In contrast, if the LEC denies such access, the scale is increased and there are significant barriers to entry, measured in the number of customers need to reach E_{crit}, where E_{crit} was defined as the point at which the elasticity of cost is $(C_A/C_M)>K_{crit}$. Thus the LEC can effect, indirectly, its monopolistic control, as a bottleneck player, over any of the other competitors in its disaggretable business segments.

Based on this analysis, there are several general policy conclusions:

(i) Lack of Scale allows the market to be opened to a wider base of users and still yield the maximum public benefit. Specifically, Pareto efficiency is achieved if and only if multiple competitors are allowed to compete in a single market.[18]

(ii) The LEC holds monopolistic bottleneck control over entrants if co-location and marginally equitable pricing is not effected. Moreover, it can be argued that such behavior violates several antitrust provisions.[19]

(iii) The demand curve is price dependent and price is driven by both internal efficiencies and external competitiveness. Internal efficiencies are achievable from the existence of the base case developed herein. External competitiveness is obtained by maximizing the scope of competitors. Competitors must be viewed in a total context and thus allowance of addition transport access to the existing holders will be a disincentive, and economic burden, and will further dienfranchise the small competitors.

(iv) The LEC must, in order to avoid the clear issue of predatory pricing, deliver ONI service elements in an equitable marginally priced form, wherein the pricing is consistent with all internal transfer pricing. The issue of disaggregation is driven by establishing a competitive environment that maximizes public access and good.[20]

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18. The FCC's current NPRM on PCS is heavily laden with the issue of scale. The Commission bases many of its assumptions on the existence of scale. Clearly this is not the case and it is recommended that the Commission review their results in the light of the issues raised herein.

19. The references by Fisher and Fisher et al are detailed in the applications of the antitrust issues in this case. In Fisher et al the authors detail the IBM case. In contrast, the AT&T case was based on the same issues that have been developed in this paper. The IBM case was on market share and the AT&T case was on barriers to entry through discriminatory pricing. As Fisher argues separately, the barrier to entry can be artificially created and supported by both inefficient economic production internal to the firm as well as a deliberate disallocation of costs and resources.

20. In the Harvard Thesis by Weiss, the author has recommended to the Commonwealth of Massachusetts that "Maximum disaggregation of services on a fair and equitable marginal cost basis" , p. 48, are essential for telecommunication competitiveness in Massachusetts. This Thesis was submitted at the request of the Governor and to Len Evenchik, Director of Network Services, Massachusetts Office of Management Information Systems.

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